

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A laser apparatus comprising:

a block having a stepped shape formed with a plurality of mount portions which have different heights and are arranged in a first direction parallel to an optical axis in order of height; and

a plurality of sets of a collimator-lens array and a plurality of laser diodes, where the collimator-lens array in each of the plurality of sets is constituted by a plurality of collimator lenses which are arranged along a second direction and collimate laser beams emitted from the plurality of laser diodes in said each of the plurality of sets;

wherein said plurality of laser diodes and said collimator-lens array in each of said plurality of sets are fixed to one of said plurality of mount portions so that light-emission points of the plurality of laser diodes in each of the plurality of sets are aligned in the second direction;

wherein each of the sets of a collimator lens array and each of the plurality of laser diodes is mounted on a mount portion;

wherein the mount portions on which each of the sets of a collimator lens array are mounted have vertical heights different from the vertical heights of the mount portions on which the plurality of laser diodes are mounted; and

wherein the mounts portions on which the sets of a collimator lens array are mounted regulate the vertical position of each of the collimator lenses in each of the sets of a collimator lens array;

wherein the block is a single, solid unit.

2. (original): A laser apparatus according to claim 1, wherein a bottom surface of said collimator-lens array in said each of said plurality of sets is fixed to an upper surface of said one of said plurality of mount portions so that the collimator-lens array is supported by the upper surface of said one of said plurality of mount portions.

3. (original): A laser apparatus according to claim 1, wherein said plurality of laser diodes in each of the plurality of sets is fixed to a surface of one of the plurality of mount portions, and reference marks which indicate fixation positions of the plurality of laser diodes are arranged on said surface of said one of the plurality of mount portions.

4. (original): A laser apparatus according to claim 2, wherein said plurality of laser diodes in each of the plurality of sets is fixed to a surface of one of the plurality of mount portions, and reference marks which indicate fixation positions of the plurality of laser diodes are arranged on said surface of said one of the plurality of mount portions.

5. (original): A laser apparatus according to claim 1, wherein said plurality of laser diodes in each of the plurality of sets are realized by a multicavity laser diode chip having said light-emission points.

6. (original): A laser apparatus according to claim 2, wherein said plurality of laser diodes in each of the plurality of sets are realized by a multicavity laser diode chip having said light-emission points.

7. (original): A laser apparatus according to claim 1, wherein said plurality of laser diodes in each of the plurality of sets are realized by a plurality of multicavity laser diode chips each having a plurality of light-emission points.

8. (original): A laser apparatus according to claim 2, wherein said plurality of laser diodes in each of the plurality of sets are realized by a plurality of multicavity laser diode chips each having a plurality of light-emission points.

9. (original): A laser apparatus according to claim 1, wherein said plurality of laser diodes in each of the plurality of sets are each a single-cavity laser diode chip having a single light-emission point.

10. (original): A laser apparatus according to claim 2, wherein said plurality of laser diodes in each of the plurality of sets are each a single-cavity laser diode chip having a single light-emission point.

11. through 14. (cancelled).

15. (new): The laser apparatus according to claim 1, wherein the block is a heat block.

16. (new): A laser apparatus comprising:

a block comprising a plurality of mount portions, wherein each mount portion has a height different from each other mount portion and the plurality of mount portions are arranged in order of height in a first direction, parallel to an optical axis;

a plurality of collimator lens arrays, wherein each collimator lens array comprises a plurality of collimator lenses arranged in a second direction, perpendicular to the first direction, and each collimator lens array is mounted on one of the plurality of mount portions;

a plurality of laser diode arrays, wherein each laser diode array comprises a plurality of laser diodes arranged such that light emission points of the plurality of laser diodes are aligned in the second direction, and each laser diode array is mounted on one of the plurality of mount portions;

wherein each collimator lens of each collimator lens array collimates a laser beam emitted from a corresponding laser diode of a corresponding laser diode array; and

wherein the block comprises a plurality of vertically-stacked planar plates.

17. (new): The laser apparatus according to claim 16, wherein each of the plurality of vertically-stacked planar plates corresponds to one of the plurality of mount portions.

18. (new): A laser apparatus comprising:

a block having a stepped shape formed with a plurality of mount portions which have different heights and are arranged in a first direction parallel to an optical axis in order of height; and

a plurality of sets of a collimator-lens array and a plurality of laser diodes, where the collimator-lens array in each of the plurality of sets is constituted by a plurality of collimator lenses which are arranged along a second direction and collimate laser beams emitted from the plurality of laser diodes in said each of the plurality of sets;

wherein said plurality of laser diodes and said collimator-lens array in each of said plurality of sets are fixed to one of said plurality of mount portions so that light-emission points of the plurality of laser diodes in each of the plurality of sets are aligned in the second direction;

wherein each of the sets of a collimator lens array and each of the plurality of laser diodes is mounted on a mount portion;

wherein the mount portions on which each of the sets of a collimator lens array are mounted have vertical heights different from the vertical heights of the mount portions on which the plurality of laser diodes are mounted;

wherein the mounts portions on which the sets of a collimator lens array are mounted regulate the vertical position of each of the collimator lenses in each of the sets of a collimator lens array

wherein each of the plurality of laser diodes is fixed to a surface of one of the plurality of mount portions at a location indicated by one of a plurality of reference marks; and

the laser apparatus further comprises an optical fiber; and a second collimator lens which collimates laser beams from the plurality of laser diodes into a convergence spot on the optical fiber; wherein a core diameter of the optical fiber is greater than a diameter of the convergence spot by not more than about 10 μm .